

Quarterly Report – Public Page

Date of Report: *September 30, 2011*

Contract Number: DTPH56-10-T-000016

Prepared for: PHMSA of USDOT and a group of sponsors

Project Title: Realistic Strain Capacity Models for Pipeline Construction and Maintenance

Prepared by: Center for Reliable Energy Systems (CRES)

Contact Information: Yong-Yi Wang, ywang@cres-americas.com, 614-808-4872

For quarterly period ending: September 30, 2011

Public Page Section

Pipelines may experience large longitudinal strains in areas of frost heave and thaw settlements in arctic regions, seismic activities, mine subsidence, etc. At least two failure modes are possible when pipelines are subjected to the large longitudinal strains: *tensile rupture* and *compressive buckling*. These two failure modes are treated separately with different levels of refinement in the current industry practice. In actual pipelines, the two failure modes interact and work simultaneously. The main objective of this project is to develop a unified approach to the two failure modes. The industry and regulators are expected to benefit from the outcome of this project through (1) refined strain capacity models and (2) effective allocation of resources to address the varying levels of possible threats to pipeline safety and integrity.

CRES continued the development of the analysis approach for realistic strain capacity models and started strain capacity analyses. The focus of the technical development was on the effect of model length and loading mode on the compressive strain capacity. During this quarter, CRES was notified by US DOT that the project is placed in the “renegotiate” category and the Federal Government’s goal in this regard is to assume full funding for the project. Per DOT request, CRES revised the milestone of the project. The revised milestone was submitted to DOT for approval.

There are no major findings to report at this time. No public meetings are scheduled for next quarter.